

ticular cartridge depends upon its own power to withdraw itself from the barrel, it will be obvious that the cartridge cannot remove itself from the barrel before it explodes.

A gun which loads and fires itself is certainly a novelty, and presents many interesting features and possibilities to any one who takes an interest in implements of warfare.

The gun may be trained in any direction by turning the crank which operates a tangent screw, the stem of which projects from the platform immediately below the cartridge box seen on the top of the tripod, whilst a fine adjustment in elevating may be obtained by turning the small hand wheel, which forms a part of the diagonal telescopic brace which supports the rear of the gun. By loosening the three-handled screw immediately below the central standard, the gun may be turned completely round, and by loosening the thumb screw of the telescopic brace, the gun is absolutely free to be moved up or down or in any direction while firing. If, however, it is desired to have a definite stop to the horizontal play of the gun, as, for instance, when firing upon a bridge, a pass, or a ford, or upon earthworks, the gun may be sighted between the two points, and adjusted by the thumb nuts on the tangent screw stem, when the gun will be free to operate between these two points, but will not go beyond them. Fig. 1 is a perspective view of the gun. Fig. 2 is a longitudinal central section of the weapon. A is the block or bolt which slides freely after the manner of the cross head of a steam-engine; B is the barrel; C the locking device for securing the block to the barrel at the instance of discharge; D is the cocking lever; E, the carrier which draws the cartridges out of the belt and deposits them in the feed wheel G; F is the belt wheel which draws the belt of cartridges into the gun; H is a connecting rod made slightly elastic by being provided with a strong spring; I is a crank which does not, however, turn completely round; L is a point of resistance, against which the cocking-lever, D, strikes at each rearward motion of the block; K is a shaft connected with the trigger, which operates upon the sear and also upon the controlling chamber J; M is the extractor which starts the cartridge from the barrel; N is a bar which holds the locking device C in position, and which raises it or unlocks it at each rearward motion of the barrel; O is a casing surrounding the barrel, which may be used, if desired, as a water jacket.

RORAIMA

OUR readers will be interested in reading the following letter, which has just been received at Kew, from Mr. im Thurn, in confirmation of his telegram already published (*NATURE*, vol. xxxi. p. 342), announcing his successful ascent of Roraima:—

Georgetown, February 4, 1885

I have just sent a most brief telegram (such things are expensive here) which will, I hope, give the first news that Roraima has been ascended; and I much wish I could write even a brief report to go by this mail, but ever since I have been back (we got back four days ago) I have been in bed with the most severe attack of fever and ague that ever befel me, and, though the doctor assures me that I have now turned the corner, I am so weak as to be quite unable to sit up. However, before next mail I must manage something. And in the meantime I send a local paper which purports to give an account of the expedition derived from myself. The main facts are tolerably correct, but the details are much blurred.

We were quite successful in getting to the top, and have found that the plateau is by no means the isolated spot it has sometimes been supposed to be. It was, however, a great disappointment that, our way up being

so extremely laborious, it would be quite impossible, without a very large expenditure in somewhat smoothing the path, to carry up hammocks, &c., provisions, and firewood (for there are no trees on the top and it is bitterly cold)—it was a great disappointment, I say, that we could only explore the top for a short distance from the point which we first reached. I see, however, no reason to believe but that the whole top is of one character. The scenery is in the highest degree wonderful. I made many fairly successful sketches (considering I am no artist), which will give a very fair idea of the mountain and of the scenery on the top. As I wish to keep the original sketches for the present, to copy them at my leisure, I have just handed the half-dozen most characteristic amongst them to a photographer here, who has before been fairly successful in copying drawings for me, and I hope to send you copies by next mail. The vegetation (on the top) is most wonderful, but somewhat scanty and quite dwarf. I have between 300 and 400 species for you. I have also some living plants (*Heliamphora*, three most exquisite *Utricularias*, two of which are, I fancy, new; and a few other things), but, as these want much nursing, I have put them into wardian cases, and shall take them home for the present. (I miss Jenman now, and have throughout the expedition, immensely.)

Yours very truly,

(Signed) EVERARD F. IM THURN

NOTES

AT the moment of going to press we have received from Sir E. J. Reed a communication protesting against some of the statements made in our article last week on "The Relative Efficiency of War-Ships," and pointing out that the system of construction advocated by him was greatly modified during the ships' progress. So far from wishing to deal unfairly with Sir E. J. Reed's views, one of our chief objects was to support his protest against the existing state of things, by suggesting that scientific experiments should be resorted to to settle some of the questions on which doubts have been expressed by contending authorities.

WE regret to learn that M. Milne-Edwards is lying in a precarious condition.

OUR readers will regret to learn that Prof. Bonney will resign his post as secretary of the British Association after the Aberdeen meeting. Prof. Bonney, we believe, feels compelled to take this step mainly on account of the inroads which the work of the Association makes upon his time. No one will regret his retirement more than the council and his fellow officials.

M. BOUQUET DE LA GRYE has received a mission from the French Minister of Public Instruction to proceed to Teneriffe in order to study the variations of gravitation according to altitude.

WE have received from the Royal Society of Public Medicine of Belgium its recent monthly tables. With the present year it assumes a new field of usefulness. Founded originally in 1876, it was composed of men who by their position or special knowledge were able to participate (1) in determining the cause of mortality in general, and the circumstances which affect public health; (2) in informing and assisting the authorities by special studies and researches; (3) in preparing the medical topography of Belgium; and (4) in discussing at annual public meetings questions presently relating to this work. The Society is formed of eleven local subdivisions, each sending a number of members to form the general council. But in addition to these subdivisions, for administrative purposes, the Society is also divided for the scientific service into a number of zones limited according to the physical nature of the districts. The medical topography of the kingdom, and all questions relating to it, are studied according to these zones. During last year the Society made a

systematic inquiry into the sanitary situation of the country, which was highly approved of at the Health Exhibition in London, and now it has been determined to continue the investigations on a systematic and permanent basis. The members of the Society scattered over Belgium are called on to assist in the new undertaking, and the specimen forms which they are required to fill in monthly are now before us. There are thirteen zones, each zone being subdivided into districts. The physicians who are members of the Society, or who are willing to participate in its labours, are requested to state the diseases of which patients in their practice have died during the month. From these various reports a general statement, and tables of relative statistics are issued by the central body. In course of time a medical topography of the country, the enormous public advantages of which are apparent, will be issued.

THE *Transactions* of the Seismological Society of Japan for 1884 (vol. vii. part 2) contains a paper, by Prof. Milne, on 387 earthquakes observed during two years in North Japan. To determine the extent of country over which an earthquake was felt, he distributed bundles of post-cards to the Government officials at all important towns within a distance of 100 miles of Tokio, with a request that every week one of the cards should be posted with a note of any earthquakes that might have occurred. By this expedient it was discovered that the Hakme Mountains to the south of the Tokio plain appeared to stop every shock coming from the north, and accordingly the barrier of post-cards was stopped in that direction, but was extended gradually to the north until it included the forty-five principal towns in the main island to the north of Tokio, besides several places in Yezo. In Tokio, observations as to direction, velocity, and intensity were made with various earthquake instruments. A description of the principal instruments used, with a comparison of their relative merits, has already been given by Prof. Milne in vol. iv. of the *Transactions* of the Society. The second part of the paper is devoted to a list of the 387 earthquakes recorded, with particulars of each; 124 maps of earthquake districts, as well as numerous other illustrations, are appended. The results of an exhaustive study of these earthquakes may be summed up as follows:—(1) As to distribution in space: of the 387 shocks, 254 were local, that is, they were not felt over an area greater than 50 square miles; 198 of these were confined to the seaboard, and 56 were inland. The average diameter of the land surface over which the remaining 133 extended was about 45 miles, but four or five of them embraced a land area of about 44,000 square miles. These great shocks originated far out at sea, and consequently were not so alarming in their character as many which originated nearer to or beneath the land. (2) Simultaneous shocks: some of the disturbances took place at areas remote from each other, whilst intermediate stations did not record them. (3) Origins of earthquakes: the general result under this head is that the greater number of earthquakes felt in Northern Japan originated beneath the ocean; 84 per cent. of the whole having so originated. The district which is most shaken is the flat alluvial plain around Tokio. Indeed, the large number of earthquakes felt in low ground as compared with the small number felt in the mountains is very remarkable. It is also noticeable that in the immediate vicinity of active or recent volcanoes seismic activity has been small. The map marking the general distribution of volcanoes and the regions of the greatest seismic activity shows that these are not directly related to each other. The district, too, where earthquakes are the most numerous, is one of recent and rapid elevation, and it slopes down steeply beneath an ocean which, at 120 miles from the coast, has a depth of about 2000 fathoms, whilst on the other side of the country, where earthquakes are comparatively rare, at the same distance from the shore the depth is only about 120 fathoms. In these respects the seismic

regions of Japan resemble those of South America, where the earthquakes also originate beneath a deep ocean, at the foot of a steep slope, on the upper parts of which there are numerous volcanic vents, whilst on the side of this ridge opposite to the ocean earthquakes are rare. (4) Relation of earthquakes to various natural phenomena: the preponderance of shocks in winter, as revealed by this investigation, is really remarkable; 278 took place in the winter months, as against 109 in the summer, and of the former number, 195, or more than half of the whole number for the two years, took place in the three coldest months of the year—viz. January, February, and March, in other words, there is a general coincidence between the maximum of earthquakes and the minimum of temperatures. But the relation of seismic *intensity* (as distinct from the number of earthquakes) is even more remarkable, for the figures show that the winter intensity is nearly three and a half times as great as the summer intensity. M. Perrey thought he discovered a maximum of earthquakes for the moon's perigee, but no such maximum has been found for Japan. Speaking generally, no marked coincidence was found in the present instance in the occurrence of earthquakes and the phases of the moon. The above are the general results, stated briefly, of the most exhaustive and remarkable study yet undertaken in the domain of seismology.

La Nature contains a long report on the Andalusian earthquakes, from the pen of M. Noguès, a mining engineer of Granada, which, as being the first scientific investigation of the catastrophe, is worthy of special notice. The whole movement presented three phases. The first manifested itself, prior to December 25, at Pontevedra, Vigo, and in Portugal; in other words, in the eastern part of the Iberian peninsula. The second was very short and intense, and made itself felt in the centre and south; it reached its maximum intensity on the night of December 25. The third phase lasts still in the provinces of Granada and Malaga, and extended east to Valencia. The oscillatory movement of December 25 embraced a considerable superficial extent. The disturbed area in the peninsula is comprised between Cadiz and Cape Gaeta, between Malaga and the Carpetena chain. The movement became more and more intense as it left this mountainous mass and travelled in a southerly direction, until it attained its maximum in the region between the Serrania de Ronda and the Sierra Nevada of Granada. The oscillatory motion was gradually accentuated towards the south, especially on the southern side of the great central Spanish plateau, bounded by the slope of the valley of the Guadalquivir (Seville, Cordova, Malaga, and Granada). M. Garcia Alvarez localises the phenomenon in Andalusia, and regards the Sierra Nevada as the point of departure. M. Noguès then deals in succession with the relations between the seismic motions and the geological structure of the district, the geological phenomena, such as fissures in the earth, produced by the earthquakes, and alterations caused by them in the level of springs. He sums up his conclusions by pointing out that the geological observations which have been made so far, although local, limited, and imperfect, demonstrate that there were two different kinds of motions—one oscillatory, the other a trembling movement. Every one who felt the great earthquake of the 25th experienced first a vertical shock, and then, after a short interval, another movement like a balancing. A great fissure at the village of Guevejar presents at two points two interesting sections. At one the trunk of an olive-tree has been split in two from its root to the branches, as if from a blow of a hatchet, each part occupying a side of the fissure, one on one side, the other on the other. At another part the fissure has divided in two the wall supporting the wheel of the powder-factory at Guevejar. The cracks in the houses in the village are in lines parallel to these fissures, and the marks left in the soil

indicate an oscillatory motion. The chimneys, in many cases, were turned half around on their axes, without any further disturbance of a single portion of the structure; and, in fact, an examination of the various marks left by the earthquake of December 25 places it beyond doubt that there was a trembling as well as an oscillatory movement.

ON Wednesday evening last week, at half-past eight, three heavy shocks of earthquake, lasting for two seconds, and passing from west to east, were felt at Temesvar, in Southern Hungary. On Thursday morning there was another and slighter shock. Two sharp shocks were felt on Friday in Spain, most severely in Granada, Loja, Alhama, and other districts on both sides of the Sierra Tejea. In the Provinces of Granada and Malaga many houses were damaged, and buildings that had suffered in the previous earthquake were now knocked down.

THE last number of the *Bulletin* of the Essex Institute (Salem, July to December, 1884) is of especial interest, as it contains the proceedings held in commemoration of the fiftieth anniversary of the foundation of the Essex County Natural History Society, of which the Institute is the natural heir and successor. The papers which were read were all appropriate to the occasion. Prof. Morse dealt with the condition of zoology fifty years ago and now, in connection with the growth of the Institute. Mr. Robinson discussed the progress of botany in Essex county during the half-century, and the influence of the Society on it, dividing his paper into three parts: (1) The condition of botanical knowledge now as compared with fifty years ago; (2) the progress made in that period in the district, as shown by the increase of libraries, public museums, private herbaria, &c.; and (3) the practical benefit and general knowledge bestowed upon the people of the county by such increased accurate knowledge of the subject and the facilities for obtaining it. It would be impossible to sum up more clearly and thoroughly, from all points of view, the benefits of such societies as the Essex Institute to their localities and to the progress of science in general than is done in this paper. Mr. McDaniel deals with geology and mineralogy, in which the work has not been so great as in botany, zoology, and prehistoric archaeology, "owing to the bent and profession of the leading members." The commemorative papers conclude with a brief historical sketch by Mr. Samuel Fowler, who notices as evidence of the liberality of the founders of the Society that, though nothing was heard of women's rights fifty years ago, they invited ladies to join them, adding in their circular: "It is anticipated that they will contribute much to the success of the Society." The historiographer is able to add that these anticipations were realised, for "ladies have always taken a deep interest in the Society and its work, and have greatly aided us in many ways." The result of this "stock-taking" after half a century is a legitimate source of pride to the inhabitants of the good old town of Salem and its neighbourhood.

It will interest many of our readers to know that an Exhibition of Photographs by Amateurs will be held at 103, New Bond Street, from April 23 to May 9, under the auspices of the "London Stereoscopic Company." This, as far as we know, will be the first of its kind, and will doubtless be patronised by a large number of exhibitors, and tend to encourage the growing popularity of photography amongst amateurs. Several photographs by the late Mr. Cameron, of the *Standard*, will form an interesting feature of the Exhibition. Prizes to the value of 200*l.* will be awarded. Intending exhibitors are requested to communicate with Mr. T. C. Hepworth, at 108, Regent Street, W.

THE popular Chinese practice and superstition with regard to persons in an epileptic fit are not a little curious. When a

person gets an attack of epilepsy, those about him rush away for a few blades of grass, which they put into his mouth. They believe that during an attack of epilepsy the spirit leaves the body, and, there being a vacancy within, it is immediately filled by the spirit of an animal, generally a sheep or a pig, and the sound in the person's throat as he begins to revive is taken for the bleating of the one or the grunting of the other. Under these circumstances they attempt to propitiate the animal by putting grass into the man's mouth, possibly under the impression that they can entice the animal's spirit in the man to remain till his own returns; and on no consideration will they remove him till the fit is over, for, if they did, they believe his own spirit would not be able to find him again, and thus he would die.

MESSRS. W. SWAN SONNENSCHN & CO. will shortly publish a translation, by Prof. Hillhouse, M.A., of the Mason Science College, of Strasburger's "Das kleine botanische Practicum."

THE next Ordinary General Meeting of the Institution of Mechanical Engineers will be held on Friday, March 20, at 25, Great George Street, Westminster. The chair will be taken at 7.30 p.m. by the President, Mr. Jeremiah Head. The following papers will be read and discussed, as far as time will admit:—On recent improvements in wood-cutting machinery, by Mr. George Richards, of Manchester (adjourned discussion); description of the tower spherical engine, by Mr. R. Hammersley Heenan, of Manchester; on the history of paddle-wheel steam navigation, by Mr. Henry Sandham, of London.

THE Annual Report of the Belfast Naturalists' Field Club is a respectable volume of about 260 pages, with twenty-four plates containing about fifty illustrations, devoted in the present number wholly to cromlechs and other prehistoric remains in the north and west of Ireland. The Society has attained its majority (the past year being its twenty-first), and the secretary is able to report that it was never more prosperous, either as regards increased membership, financial condition, or the value of the work done. Among the papers read during the winter session we notice: on the antiquities of the West of Ireland, on a microscopical examination of a bit of groundsel, Magilligan strand after a storm (in which Canon Grainger describes the castaways after a gale), ants, a trip to America, the age of the basalts of the North-East Atlantic (by Mr. J. Starkie Gardner), while the appendix contains three longer papers:—Notes on Irish coleoptera, by Messrs. Halliday and Stewart; the cromlechs of Antrim and Down, by Mr. Gray; and notes on prehistoric monuments at Carrowmore, near Sligo, by Mr. Elcock. It is to the two last that the numerous illustrations are attached.

M. WALDEMAR CZERNIAWSKY, already known for his works on the fauna of the Black Sea, has now published at Kharkoff a work on the "Crustacea decapoda Pontica littoralia," accompanied by several plates, being a very elaborate description of the Black Sea Decapods. The number of Pontic species of Decapods has been increased by twenty, reaching thus forty-eight species, with numerous varieties, though it will probably be greater when the depths of the Black Sea have been better explored. The results of this work are numerous and interesting. The species offer altogether a very great variety of forms. The Black Sea contains the local forms of Mediterranean varieties, while in the Celtic region are found the local forms of other varieties. The author asserts that the metamorphosis of the superior crabs, such as *Carcinus*, which presents nine different stages, are a repetition of their genealogy, and arrives at a series of very interesting conclusions as to the genealogy of different species. All three species of *Astacus* which are found in the Ponto-Caspian fauna are maritime forms which have immigrated

into sweet water, and even the *Astacus pachypus*, Rathke, of the mountain-lake Abrau, is a remainder of a maritime fauna; so also *Thelphusa*, which has gigantic representatives in the South Caspian. Certain crabs reach really gigantic size in the Ponto-Caspian region; such as *Eriphia spinifrons* and *Carcinus manas* on the shores of Crimea and at Odessa. While most crabs reach a great development only in very salt and warm water, others reach the same size under the influence of reverse conditions. The Decapods of the Azov Sea have not yet been explored. The descriptions of the species and their varieties being given in Latin, as also the explanations to the plates, the work is rendered accessible to all zoologists, many of whom, however, will regret not to be able to understand the notes (mostly zoo-topographical, and sometimes adding minor details to the description), which are in Russian.

We have received from the Johns Hopkins University the two last of the Studies on Historical and Political Science. One deals with land laws in mining districts, and describes the regulations for the use of land made by agreement among the miners themselves in the Western States. They show a return to primitive ideas, where use is made the proof of ownership, and equality in the size of the various lots is of prime importance. Mr. Shinn is the author of this number. The second, by the editor, Dr. Adams, describes the influence of the State of Maryland upon the land cessions of the United States, and is specially interesting for its references to Washington's project for devoting the present made to him by his native State, Virginia, to the establishment of a National University.

WITH the exception of a few pages, the whole of the last number (vol. vi, No. 4) of the *Boletín de la Academia Nacional de Ciencias* of Cordova (Argentine Republic) is occupied by a paper by M. Oscar Döring on meteorological observations made by him at Cordova during 1883. These were a continuation of those made by him in 1882 on evaporation, and the various temperatures at six different depths. But for 1883 he has added other observations and arranged the tables as follows:—Atmospheric pressure, temperature of the air, the elastic force of the atmospheric vapour, relative humidity, evaporation in the shade and in the sun, temperature of the soil, solar radiation, storms, and rainfall. There is also a short paper on the observations of the German expedition to Bahia Blanca, to observe the transit of Venus.

THE additions to the Zoological Society's Gardens during the past week include two Wood Hares (*Lepus sylvaticus*) from North America, presented by Mr. F. J. Thompson; an Alexandrine Parrakeet (*Palaeornis alexandri* ♀) from India, presented by Mr. W. Hay; a Common Magpie (*Pica rustica*), British, presented by Mr. H. Clare; a Slowworm (*Anguis fragilis*), British, presented by Mr. R. Gunter; a Short-tailed Wallaby (*Halmaturus brachyurus*) from Western Australia, deposited; two Brown Pelicans (*Pelecanus fuscus*) from the West Indies, purchased; an Isabelline Lynx (*Felis isabellina* ♂) from Tibet, received in exchange; two Spotted Ichneumons (*Herpestes nepalensis*) from Assam, received on approval.

OUR ASTRONOMICAL COLUMN

A COMET IN 1717.—In a note to the Royal Society (*Phil. Trans.*, No. 354) Halley reported that on Monday, June 10, 1717, in the evening, the sky being very serene and calm, he was desirous of examining Mars, then very near the earth, to ascertain whether in his 20-foot telescope he could distinguish the spot said to be seen upon his disk, and directing his telescope for that purpose he accidentally met with a small whitish appearance near the planet, which seemed to emit from its upper part a short kind of radiation, directed nearly towards the point opposite to the sun. The great light of the moon, then not far from full, and close at hand, hindered the object from being

distinctly seen, but he determined its place to be nearly in $17^{\circ} 12'$ of Sagittarius with $4^{\circ} 12'$ south latitude. The position, he adds, would be more exactly found by means of two small stars near it, the more northerly of which had the same latitude and followed at the distance of about six minutes; the other was about four minutes south of the former, and followed it about a minute, "the angle at the northern star was somewhat obtuse, of about 100 degrees, and the distance of the nebula from it was se-qualteral to the distance of the two stars, or rather a little more." No motion being detected in over one hour, Halley doubted if it were a comet, but on June 15, the moon being down and the sky clear, he had a distinct view of the two stars, but there was no sign of the nebulosity where it had been observed on June 10. He was led by this circumstance to remark upon the number of comets which might escape notice, from their being telescopic objects, and adds that, although comets had been seen elsewhere in 1698, 1699, 1702, and 1707, he could not learn that any comet had been perceived in this country for the thirty-five years previous to the observation above described, which implies that none had been seen here since the year 1682, that of the appearance of the famous comet which bears Halley's name.

The small stars to which Halley refers would appear to be Nos. 16,627 and 16,631 in Oeltzen's Argelander.

THE VARIABLE STAR S CANCRI.—A minimum of this short-period variable being due during the night of February 20, Mr. Knott availed himself of a fine sky at Cuckfield to observe it as long as it was possible to do so. The watch commenced at 8h. 40m., and ended at 17h. 15m. At 9h. 23m. no change was noticeable, but soon after 9h. 30m. the star began to decline, and gradually fell from 8.1 to 10.4 mag., which point was reached about 15h. 30m. From that time till 17h. 15m. no certain change was detected, though at 17h. 15m. there was a suspicion of the star being possibly a trifle brighter. By this time it was 17h. past the meridian, and getting too low for observation. As it was not possible to follow the star till its advance on the rising curve, Mr. Knott was unable to fix the time of minimum with certainty, but considered the predicted time (16h. 22m.) was pretty correct. He remarks further that Prof. Schönfeld gives 8.4h. as the time of decrease, and 13h. as that of increase. If this held for the minimum of February 20, and the decrease began at 9h. 30m., the minimum would not be reached before 18h., and the normal magnitude would not be attained before February 21, 8h. At 6h. 30m. on the latter date he doubted whether the star had recovered its normal brightness, but by 7h. or 7h. 30m. there seemed no doubt about it. Comparing the form of his curve with Prof. Schönfeld's, it appeared that on this occasion the star was longer in falling from 9.4 and 9.9 m. to the lowest point reached, than the observations of Prof. Schönfeld indicated; but Mr. Knott writes doubtfully upon this point, not having previously watched S Cancri through its changes. The next minimum may be expected on March 11, between 15h. and 16h. Greenwich time.

THE MELBOURNE OBSERVATORY.—We have received the nineteenth annual report of the Government Astronomer of Victoria to the Board of Visitors of the Melbourne Observatory. The new transit circle of 8 inches aperture, constructed for that establishment by Mr. Simms, was received in May last, and the mounting was completed early in July. At the time of drawing up the report (August, 1884) there were only wanting some steps and observing chairs, for the instrument to be brought into regular use. It is stated to be very similar in form and dimensions to the transit circles constructed by the same firm for the observatory at Cambridge and for that of Harvard College, U.S. The great reflector was in better condition than at the date of the previous report, nevertheless it is proposed to send the two specula, one after the other, to England, to be re-polished. A number of stars selected by Prof. Auwers had been observed with the old transit circle, to assist in the formation of a fundamental catalogue of southern stars. Mr. Ellery mentions those of Herschel's nebulae, which had been observed, and of which drawings had been made with the great telescope; the nebula of η Argus, 30 Doradus, and the "Horseshoe" nebula are included in his list. Pons' comet was observed for position from January 6 to March 18. The completion of the telegraphic determination of Australian longitudes, it is reported, was only waiting a new series of exchanges between Sydney, Adelaide, and Melbourne; New Zealand had been connected with Sydney by a most successful set of time-exchanges through the cable. The connection of Brisbane